Claims

1. An optical device for lithography comprising a lens system positioned, with respect to the optical path, behind a mask,

wherein in an area between the mask and the lens system a medium is provided which has a refractive index (n) greater than 1.

2. The optical device according to claim 1, wherein the refractive index (n) of the medium is greater than 1.1.

3. The optical device according to claim 1, wherein the refractive index (n) of the medium is greater than 1.2.

4. The optical device according to claim 1, wherein the medium is a liquid.

5. The optical device according to claim 4, wherein the liquid comprises water.

6. The optical device according to claim 4, wherein the liquid comprises perfluorpolyether.

7. The optical device according to claim 1, wherein the medium is a gas.

8. The optical deviceaccording to claim 1, wherein the lens system comprises one or a plurality of individual lenses.

9. The optical device according to claim 1, wherein the device is used for the exposure of a wafer

positioned, with respect to the optical path, behind the lens system.

10. The optical device according to claim 9, wherein, in an area between the lens system and the wafer a medium is provided which has a refractive index (n) of approximately 1.

11. The optical device according to claim 10, wherein air is used as the medium provided in the area between the lens system and the wafer.

12. The optical device according to claim 9, wherein, in an area between the lens system and the wafer a medium is provided which has a refractive index (n) greater than 1.

13. The optical device according to claim 12, wherein the refractive index (n) of the medium provided in the area between the lens system and the wafer (12, 102) is greater than 1.1.

14. The optical device according to claim 13, wherein the refractive index (n) of the medium provided in the area between the lens system and the wafer is greater than 1.2.

15. The optical device according to claim 12, wherein the medium provided in the area between the lens system and the wafer is a liquid.

16. The optical device according to claim 15, wherein the liquid provided in the area between the lens system and the wafer comprises perfluorpolyether or water.

17. The optical device according to claim 12, wherein the medium provided in the area between the lens system and the wafer is a gas.

18. The optical device according to claim 1 , wherein the mask is a photomask.

19. The optical device according to claim 1 , wherein the mask is a phase shift mask.

20. An optical lithography method, comprising:
providing a lens system ;
providing a mask; and
providing a medium which has a refractive index (n) greater than 1, in an area between the mask and the lens system.